



HYDROLOGIC & HYDRAULIC  
DRAINAGE STUDY:

# WEST END NEIGHBORHOOD

SEPTEMBER 2024



DIGITAL ENGINEERING & IMAGING, INC.



CITY OF NEW ORLEANS

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# PROJECT TEAM

## ENCOURAGING INNOVATION

The City of New Orleans, Office of Resilience and Sustainability (ORS) has recommended a hydrologic & hydraulic (H&H) drainage study to be conducted in the West End neighborhood to analyze flood risk and potential mitigation strategies that includes subsurface drainage conveyance improvements and potential green infrastructure opportunities.

Digital Engineering & Imaging, Inc. (DE) entered into an agreement with the ORS to complete this H&H drainage study and prepare the H&H Drainage Study Report. The project team consists of DE , Wingate, LLC, Civil Design & Construction, Inc., and Batture, LLC.

PREPARED FOR  
CITY OF NEW ORLEANS  
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NEW ORLEANS, LA 70112



CITY OF NEW ORLEANS

PREPARED BY  
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## IN COLLABORATION WITH

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wingate.

CIVIL DESIGN &  
CONSTRUCTION, INC.  
3251 SOUTHERN PACIFIC ROAD,  
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BATTURE, LLC  
5110 FRERET STREET,  
NEW ORLEANS, LA 70115



## EXISTING CONDITIONS

### RISK REDUCTION

Recent storms, which have brought sudden and heavy rainfall have demonstrated the need for the city of New Orleans' Office of Resilience and Sustainability (ORS) to evaluate its existing drainage infrastructure. These sudden and impactful rainfall events are occurring more often and have brought localized inundation which can cause severe damage to the community. The H&H study of the West End study area was performed in alignment with ORS's resilience building initiatives, seeking to mitigate climate change and address sudden and intense rainfall events by studying advanced approaches to improving the traditional gray infrastructure and integrating innovative green stormwater infrastructure solutions.

### PROJECT FLOODING EXTENTS: 10 YEAR RAINFALL EVENT



To mitigate flood risks identified by existing conditions models, the DE team developed five alternative solutions for analysis. These alternatives considered green infrastructure solutions as well as drainage conveyance upgrades to the existing drainage system. Each alternative was also considered based on its impact in reducing flood risk as a major decision factor, the potential impact to the community and how it can address other City of New Orleans' needs.

## EVALUATING SOLUTIONS

### ENCOURAGING INNOVATION

	ALT. 1	ALT. 2	ALT. 3	ALT. 4	ALT. 5	ALT. 6
Reduce Flood Risk	✓				✓	✓
Increase Storage Capacity*	450,000 CUFT	10,000 CUFT	50,000 CUFT	80,00 CUFT	200,000 CUFT	790,000 CUFT
Improve Public Green Spaces	✓		✓	✓	✓	✓
Reduce Urban Heat Impact	✓	✓	✓	✓	✓	✓
Civil Infrastructure Upgrades		✓	✓	✓		✓
Rec. & Community Opp.	✓					✓
Implementation Cost	\$11,266,671	\$8,736,081	\$12,764,274	\$14,977,895	\$6,825,796	\$53,695,813
Approx. Project Schedule**	24 months	24 months	24 months	24 months	36 months	48 months
Beautification to Public Spaces	✓		✓	✓	✓	✓

\*Storage Capacity are approximate quantities.

\*\*Approximate time needed to implement the design and construction of the alternative. Approximate project schedule does not consider the time for procurement of funding and contractors.

# 4 RECOMMENDATION

## PREFERRED ALTERNATIVES

### ENGINEERING WITH NATURE

The DE Team considered all six (6) project alternatives in the selection of a preferred project solution for implementation. Each project alternative was evaluated for its performance in each criteria mentioned in the Project Alternative Analysis Matrix. The most recommended projects are alternatives 1 & 5, respectively. Alternatives 2, 3, and 4 are not recommended based solely on flood risk reduction criteria, but may be considered for minor flood risk reduction benefits should the project locations have other infrastructure upgrades planned.

#### ALTERNATIVE 1 SUBSURFACE RETENTION AT FLEUR DE LIS PARK



#### ALTERNATIVE 5 SUBSURFACE RETENTION ALONG WEST HARRISON AVENUE



# ACKNOWLEDGEMENTS

## PROMOTING PARTNERSHIPS

The Hydrologic and Hydraulic Drainage Study for Project Scoping Study for the West End Neighborhood was a collaborative effort between the prime consultant (Digital Engineering & Imaging, Inc.) and subconsultants (Wingate Engineers, LLC, Civil Design & Construction, Inc., and Batture, LLC).

A special thanks to the Department of Office of Resilience and Sustainability for leading the charge in the development and study of the H&H study for the West End community and to the Sewerage & Water Board of New Orleans for its cooperation and providing critical details in the operation of the drainage infrastructure throughout West End and its surrounding communities.

### City of New Orleans, Office of Resilience and Sustainability

- Greg Nichols, Deputy Chief Resilience Office
- Meagan Williams, P.E., Urban Water Program Manager

### City of New Orleans, Department of Public Works

### Sewerage & Water Board of New Orleans

### Subconsultants

- Wingate Engineers, LLC
- Civil Design & Construction, Inc.
- Batture, LLC